Time to look beyond ageing as a factor? Alternative explanations for the continuing rise in drug related deaths in Scotland

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Abstract

Purpose – The purpose of this paper is to examine the reasons and risk factors that explain the threefold increase in drug-related deaths from 267 in 1996 to 934 in 2017 in Scotland. The authors explore the known links between deprivation and problem drug use (PDU) and discuss the impact of drug policy and service provision on PDU and drug-related deaths.

Design/methodology/approach – Using quantitative data sets from the National Records of Scotland (NRS) for drug-related deaths registered in 2017 and data sets from the Scottish Index of Multiple Deprivation (SIMD), we produce statistical data on mortality rates relating to areas of deprivation, gender and age.

Findings – The data highlight the disproportionate number of deaths in the most deprived areas in comparison to the least deprived areas and the national average. Findings indicate that one quarter of male and female DRD in 2017 were under 35. When examining the least deprived vingtile, drug-related deaths account for 2.84 per 100,000 population. Based on this mortality rate calculation, the amount of drug-related deaths are 23 times higher in the most deprived area than the least deprived area.

Research limitations/implications – The research design uses data obtained from the NRS and data from Scottish Multiple Index of Deprivation. Due to the limitations of available data, the research design focused on SIMD population vingtiles.

Practical implications – This research contributes to making unarguable links between entrenched structural inequality and increased drug-related death.

Social implications – This paper contributes to knowledge on the need for drug policy advisors to recognise the importance of deprivation that plays a major part in risks of problematic drug use and harms.

Originality/value – While several national data sets have published information by SIMD vingtile, no published research has sought to investigate the disproportionate number of deaths by population in the most deprived areas.

Keywords Social policy, Recovery, Deprivation, Drug policy, Drug use, Drug-related death

Introduction: Contexts and background

As a leading cause of preventable death, opiate and opioid overdose is a major contributor to the worsening of survival among drug users over 45 and an increasing contributory factor in drug related deaths. There is a clear trend of increased deaths among older people (aged over 35) with a drug problem in Scotland (Dickie et al., 2017). This cohort experiences significant health problems related to their drug taking (Barnsdale et al., 2016). In Scotland, drugs-related deaths (DRD) averaged 500 per annum during 2006–10, nearly 80% of them opioid related (National Records for Scotland (NRS), 2014). In 2014, it was reported that Scotland has one of the European Union's highest DRD rates at 94 per million of population (NRS, 2017). This is comparable in effect size to the United States, which

recorded 116 DRDs per million of the population (NCHS, 2014). In international terms, Scotland has a disproportionately serious problem with drug misuse and DRD.

Prevalence of problem users in Scotland

A study to produce prevalence estimates of problem drug use (PDU) has been conducted in Scotland every three years since 2000 (SPICE [1], 2018). After establishing a baseline of 55,300 in 2006, the estimated number of people (aged 15–64) in Scotland who use opiates (including illicit and prescribed methadone) and/or benzodiazepines illicitly is 61,300 (NRS, 2017). While the estimates of PDU have not increased significantly over the last decade, the incidence of DRD has (ISD, 2016; SPICE, 2018).

Drug related deaths from 1996 to 2017

There were 267 DRDs registered in 1996 in Scotland (NRS, 1997). The BMJ, in 2017, reported that DRDs in Scotland doubled in 10 years between 2006 and 2016 (Iacobucci, 2017). The NRS released the DRD figure for 2017 of 934 deaths, an increase of 8% from 2016 (SPICE, 2018). When comparing the total DRDs across the United Kingdom, Scotland records DRD rates of two and a half times the UK average. While DRDs have also increased in England and Wales, Scotland's drug death rate of 160 deaths per million in 2016 is the highest in Europe and compares unfavourably with the UK average of 60 deaths per million and the European Union average of 21 deaths per million (Iacobucci, 2017).

Three quarters of deaths (626) in 2016 were among people aged 35 or over, and the median age at the time of death was 41 years old (NRS, 2017).

Data from NHS Scotland in 2014 indicate that 60% of those who died were in contact with a service in the six months prior to death. The majority of DRDs in Scotland in 2016 (765 deaths or 88%) were linked to heroin and opioids, benzodiazepines (including NPS[1] substances that are similar in action to temazepam or diazepam), and alcohol (Hecht et al, 2014).

In 2018, the SPICE briefing released by the Scottish Government indicated that DRD among older people aged 35 and over increased from 69 in 2000 to 397 in 2015.

Although males account for three quarters of these deaths, a recent report from the Scottish Government indicates an increase in the percentage of deaths among women from 19% in 2002-2006 to 29% in 2012-2016 (SPICE, 2018; Tweed et al., 2018).

Poly-drug taking and drug related deaths

In 2000 the ACMD documented those drugs which cause the most serious risk for overdose used in combination. These drugs are opiates (including the opioid methadone), benzodiazepines, and alcohol (ACMD, 2000; NRS, 2017). This poly-drug taking is commonly reported by problem users in contact with services (Palmateer, 2016). The intravenous route of administration of opiates is partly explained by problem users using what is available and what they can afford (McPhee et al, 2013).

[1] Novel psychoactive substances

There has been an increase in the use of illicit benzodiazepines, which contribute to the total DRDs (ACMD, 2016). The data from the NRS (2014) report on drugs found at autopsy indicate 86 NPS-related DRDs occurred, mostly among males (77%). The average age of individuals was 35.8 years in 2014, lower than the overall NDRDD[2] cohort (39.1). As in the overall NDRDD cohort, and similar to NPS DRDs in previous years, most deaths were among those living in areas classified by the Scottish Index of Multiple Deprivation (SIMD) as among the most deprived (SIMD quintile 1 (61, 54%) and quintile 2 (28, 25%).

The latest NRS data indicate that novel psychoactive substances (NPS) implicated in drug-related deaths are almost exclusively benzodiazepine-type drugs, such as etizolam, and are almost always found in combination with other drugs (most commonly heroin and methadone). Data from the NDRDD for period 2009-2014 indicates that the most common combinations of drugs reported at autopsy were opiates and benzodiazepines. It is unclear if alcohol is commonly tested for in DRD.

One significant factor which may account for the rise in female DRD is the use of gabapentin (Neurontin) and pregabalin (Lyrica) which can significantly increase the risk of overdose and DRD if used in combination with alcohol (ISD, 2018; Tweed et al., 2018).

Alcohol consumption among problem drug users remains under-reported and partly ignored, or misunderstood, by service providers. O'Rawe (2009), in a study of drinking levels among those on prescribed methadone, found that those on long-term prescriptions (prescribed 5 years or more) were drinking at hazardous and problem levels significantly more than those who had been newly prescribed (less than one year). The results of this study highlighted the need for service providers to be more aware of drinking levels among service users, particularly those in the long-term prescription cohort. These service users are often seen less regularly by their key-workers and may even be considered 'stable' and no longer using illicit heroin. However, when drinking levels are considered, the potential risk to vulnerable individuals becomes ever greater. Pierce et al., (2014) in their report on mortality rates among opioid users found that that alcoholic liver disease was 7 times more common in this cohort than the general population.

Vulnerable groups

In a 2010 report by the Scottish Drugs Forum (SDF) several vulnerable groups are identified. The report states that injecting drug users are 15 times more likely to overdose than non-injectors. Risk of overdose is especially high when tolerance is reduced due to periods of reduced use or abstinence. People who have recently been discharged from hospital or released from prison are particularly vulnerable. Older drug users who have been using drugs for a long period of time are more likely to overdose due to health problems (SDF, 2010).

While an ageing cohort is in part explaining the overall rise in DRD from 2012 – 2017, the impact of the focus on abstinent recovery in the 2008 Scottish Government drugs strategy, cuts to funding of services, the impact of poverty and deprivation and its relationship to the rise in DRD in Scotland is downplayed in the SDF report (SDF, 2017) and by the Scottish Government.

[2] The National Drug-Related Deaths Database (NDRDD) collect detailed information regarding the nature, health and social circumstances of individuals who have died a drug-related death.

Deprivation

There is significant evidence that social conditions associated with deprivation facilitate initial drug experimentation and use, encourage a progression into problematic drug use, and exacerbate the risks for negative outcomes including DRD (ACMD, 1998). While caution should be placed on drawing firm conclusions on the links between deprivation and problematic drug use, as problematic drug use occurs across different socio-economic conditions, deprivation can significantly increase the risk of DRDs. Exploring the links between deprivation and problematic drug misuse, the ACMD notes that:

> *'Whatever the objective criteria which are employed to measure deprivation it is important to realise that what we are talking about here is a condition which at the same time will often exist as a potent, corrosive, subjective and personal experience. The mix of feelings are likely to include worthlessness and a sense of failure, powerless and the feeling of not being in control, alienation and apathy and loss of any role as stakeholder, the sense of lacking any hope of a personal way out or up and of there being no better future in sight for one's children. Deprivation is a psychological burden'* (ACMD, 1998: 100).

The ACMD in 1998 recognised that deprivation is subtly connected to increased risk factors such as progression from recreational use to problematic use, the intravenous injection of drugs, health and social complications related to injecting, and being caught in the gaze of the criminal justice system. Being fined for possession, or jailed for possession with intent to supply, within the Misuse of Drugs Act (1971), create intractable relationships between drug taking, criminality, and poverty (Hammersley, 2008), which further impact on stigma and discrimination (McPhee et al.,2013).

Government responses to poverty and inequality

The Scottish Government have taken forward several policy and legislative initiatives to tackle poverty. The Fairer Scotland Action Plan, (2017), and the resultant Fairer Scotland Duty: Interim Guidance for Public Bodies (The Scottish Government, 2018) has placed an emphasis on public bodies to take account of socio economic issues when taking strategic decisions. At a local level, as part of the Community Empowerment (Scotland) Act 2015, Community Planning Partnerships are legally bound to develop a Local Outcome Improvement Plan, as well as a locality plan to address socio-economic inequalities (The Scottish Government, 2018). Although this a positive step in the delivery of public services within Scotland, there is scant mention of problematic drug use in the recent Poverty and Inequality Commission convened in 2017 (The Scottish Government, 2018).

Government responses to increased drug related death

The Scottish Government responses to drug related deaths have included (1) widening access to naloxone, (2) access to opiate replacement therapies (including methadone and buprenorphine) and (3) seeking to keep problematic drugs users at risk of overdose and death in treatment. While each of these priority areas holds the promise of at least partial success, the evidence for each of these interventions is different. We briefly focus on naloxone provision, safe injecting facilities and treatment contact.

Naloxone

Naloxone is used to reverse the central nervous system (CNS) depressant effects of opiates. It can be administered orally, nasally and by injection (Kerensky & Walley, 2017). In a review of the efficacy of community naloxone distribution, Kerensky and Walley (2017) indicate that the evidence for its effectiveness as a prevention measure is still largely under- researched. Indeed, the evidence for the efficacy of naloxone to reduce the rates of DRD is considered weak by the World Health Organisation (WHO, 2014). The risk of overdose is highest on release from prison, after a period of abstinence, after discharge from hospital (Binswanger et al., 2007, Binswanger et al., 2013). Bird et al., (2016) note that international evidence from a meta-analysis of research on risk of overdose also indicates that the risk of DRD is high after release from prison (Seaman, Brettle & Gore 1998). A pre-post study conducted by Bird et al. (2016) indicated a reduction in overdose rates among people released from prison who use heroin. Given that naloxone is an opiate antagonist, if opiate and opioid drugs are used in combination, such as benzodiazepines and alcohol, its efficacy to reverse overdose could be limited. In addition, at risk groups must be in contact with a service for education on risk recognition and avoidance and use of naloxone to be of benefit. It is acknowledged that more research is required on what happens to people who have been administered naloxone, and if the preceding withdrawal states increases risk for DRD (Kerensky & Walley, 2017).

Safe injection facilities

While innovation in drug policy is demonstrated in policy initiatives such as take-home Naloxone, there have been challenges in introducing supervised injection facilities as an intervention in Scotland. Supervised or safe injecting facilities (SIFs) are specific environments where people who inject drugs can use their drug in a clean environment and have trained medical staff on the premises to exchange needles and syringes, who are in place to offer medical assistance, for example when overdose occurs. While many countries in the world have set up these types of facilities, Scotland has yet to provide such an intervention.

In 2018 Alison Thewllis, the Glasgow Central MP, launched a Private Members Bill to amend the Misuse of Drugs Act 1971 to accommodate safer injecting facilities (Hansard, 2018), to address the significant rise of 120 cases of HIV in and around Glasgow City Centre (SDF 2018). The Lord Advocate in Scotland rejected an amendment to the UK Misuse of Drugs Act 1971 (SDF, 2018). The issue reflects debates in the past on introducing methadone maintenance and needle exchanges. De Jong & Weber (1999), Stoltz, et al., (2007), Milloy & Wood (2009) and EMCDDA (2016) highlight the efficacy of SIFs, but also indicate, by their respective dates of publication, how long the evidence for such interventions has existed. These studies report declines in unsafe injecting practices, reduction in rates of HIV and Hepatitis C, decline in pubic injecting and needle sharing and rushed injections, which often lead to overdose and potential death.

Treatment contact

A total of 23,255 individuals (aged 15 to 64 years old) attended treatment services in 2012 for PDU, and were identified from multiple records by matching initials, date of birth, sex and Council area of

residence (NRS, 2014). The data indicates that 60% of individuals who died as a result of taking drugs were in contact with a service 6 months prior to death. Evidence from the NHS in Scotland indicates that 34% of treatment episodes end as an unplanned discharge (Dickie et al, 2017). More than one quarter (27%) had been in police custody and around one in ten (12%) had been in prison in the six months prior to death (Hecht et al., 2014).

Women who use drugs report non-attendance at services due to child protection concerns (Broadhurst and Mason, 2013, Kenny et al., 2015). Child removal often results in increased substance use among mothers (e.g. Kenny et al., 2015, Wall-Wieler et al., 2017).

What this information indicates is that despite prior contact with treatment and criminal justice services many individuals are slipping through the net due to treatment not meeting their respective needs, difficulty for some in complying with achieving a drug-free lifestyle, and a lack of aftercare on release from police cells and prisons.

Introduction to the study

The Scottish Government report that an ageing problem drug using cohort with health problems explains the stark increase in DRDs in Scotland. This paper examines the DRD information from 2008-2017 using data obtained from the National Records of Scotland (NRS). Using a quantitative method, we requested data on DRDs, by year of registered death, age range, and Scottish Multiple Index of Deprivation (SIMD) vingtile. Statistical tests calculating mortality rates, as well as descriptive statistics were conducted using SPSS.

Methods

The National Drug-Related Deaths Database (NDRDD) was established by the National Forum on Drug-Related Deaths to collect detailed information regarding the nature, health and social circumstances of individuals who have died from a drug-related death. Since 2016, oversight of data collection and reporting has been provided by the Partnership for Action on Drugs in Scotland Harms Group. The NDRDD has sought to give background information on the increasing numbers of drug-related deaths in Scotland and holds a variety of information on individuals who have had a drug-related death. The dataset includes: socio-demographic information; known substance use details, previous overdoses, details of medical and psychiatric conditions; details of the death, previous contact with services, and information on toxicology and substitute prescribing.

The NRS provided the date when the death was registered, in accordance with the UK Drug Strategy definition, as applied by NRS/GROS definition (NRS, 2017). The prevalence statistics were undertaken in accordance with the agreed mortality rate calculation. The population total was based on working age adults within the SIMD vingtile reported within SIMD Scotland publications (The Scottish Index of Multiple Deprivation, 2018)

The question for this rapid review of the literature and key information supplied by NRS/SIMD data is**:**

- What factors explain the rise in numbers of drug related deaths in Scotland?

We examine the ACMD 1998 report, the ACMD 2000 report, and the ACMD 2016 report. Also reviewed were Parkinson et al, 2017; Barnsdale et al., 2016; Minton et al., 2016, Dickie et al., 2017, and Tweed et al., 2018. The findings from the review of the NRS 2016 and 2017 data indicate several key risk factors associated with increases in DRDs, unaccounted for by age related health conditions.

Findings

Drug Related Deaths in Scotland by Age Category 2008-2017

Figure 1 Drug Related Deaths in Scotland 2008-2017, Individuals aged under 35 by gender

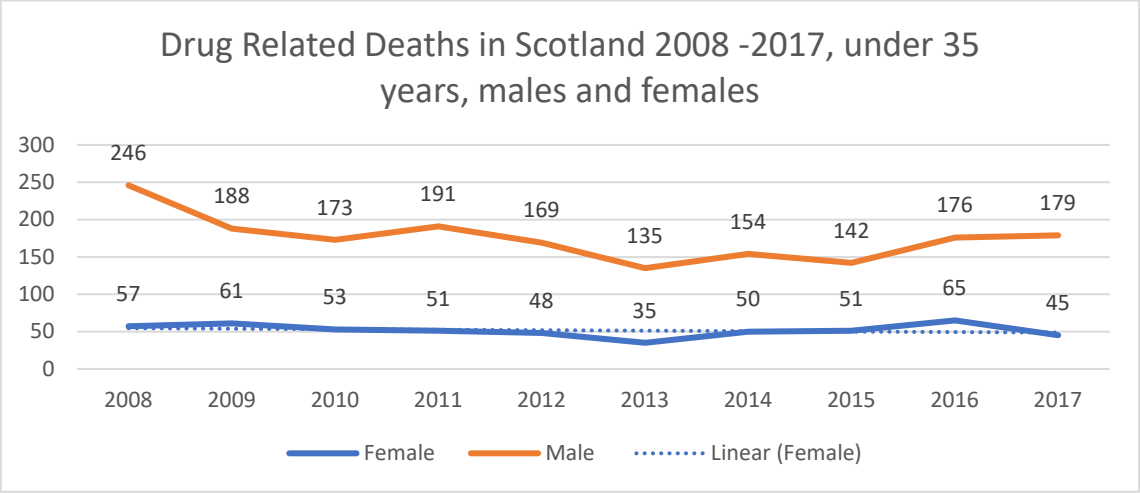

Figure 1 indicates that in 2008 there were 246 male and 57 female deaths, totalling 303 (53%) DRDs in individuals under 35. In 2017, 224 (24%) of all DRDs were in people under 35 (179 male and 45 female). Between 2008 and 2017, the number of DRDs under 35 for females has remained relatively consistent. The data indicates that a large group of deaths of male and female individuals under 35 are not satisfactorily explained by age related health conditions.

Figure 2 Drug Related Deaths in Scotland 2008-2017 Individuals under 45

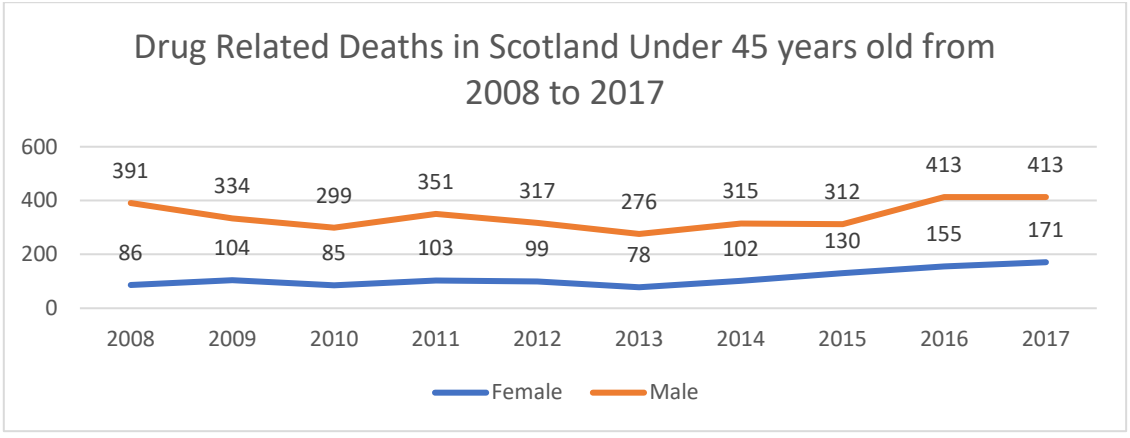

Figure 2 indicates that there were 391 male DRD in 2008 and 86 female DRD. There were 413 male DRD and 171 female DRD in 2017. The DRDs occurring in individuals aged under 45 between 2008 and 2017, range from 477 in 2008 to 584 in 2017. While there has been a stark rise in total DRD, the

death rate among females has risen significantly. It is unclear to what extent age exerts a direct causal effect on DRD risk (for example, through a greater burden of physical co-morbidities) or is a marker for other risk factors such as poly-drug use, social isolation, and complex life circumstances including issues regarding children being taken into care (Tweed et al., 2018:27).

Drug Related Deaths by SIMD Data Zone

In the following tables we produce data in the 4 most deprived and 4 least deprived vingtiles to make comparisons of the stark contrast between them. The data reproduced in Tables 1-3 indicated that in 2017 there were a disproportionate number of drug related deaths in the most deprived areas, in vingtiles 1-4.

Table 1 DRDs in Scotland 2017 by SIMD vingtile working age population

Table 1: Drug Related Deaths in Scotland 2017 by SIMD 2016 vingtile working age population			
SIMD 2016 Vingtile	Working Age Population	Number of Drug Related Deaths	Percentage of Drug Related Deaths
Vingtile 1	168519	173	18.5%
Vingtile 2	168365	127	13.6%
Vingtile 3	172019	74	7.9%
Vingtile 4	169246	100	10.7%
Vingtile 17	175223	12	1.3%
Vingtile 18	173424	9	1.0%
Vingtile 19	179213	13	1.4%
Vingtile 20	183168	3	0.3%
Data calculated using UK Drug Strategy definition (as applied by NRS/GROS) obtained in April 2018 from National Records of Scotland of number of DRDs that occurred in most and least deprived vingtiles.			

Table 1 indicates that 18.5% of the DRDs occurred in vingtile 1, which is the 5% most deprived SIMD areas. 173, (18.5%) of the DRDs occurred within the most deprived vingtile. Conversely only 3 (0.3%) of the DRDs occurred within the least deprived vingtile.

Table 2: 2017 DRD Mortality Rate by SIMD 2016 vingtile working age population

Table 2: 2017 DRD Mortality Rate by SIMD 2016 vingtile working age population			
SIMD 2016	DRD Mortality Rate	Confidence Interval 95%	Drug Related Deaths Per 100,000 of working age population
Vingtile 1	0.00102659	0.0009, 0.0012	102.6590473
Vingtile 2	0.000754314	0.0007, 0.0009	75.4313545
Vingtile 3	0.000430185	0.0003, 0.0005	43.01850377
Vingtile 4	0.000590856	0.0005, 0.0006	59.08559139
Vingtile 17	0.000068484	0.0001, 0.0002	6.848416018
Vingtile 18	0.000051896	0.0001, 0.0002	5.189593136
Vingtile 19	0.000072539	0.0001, 0.0002	7.253938051
Vingtile 20	0.000016378	0.000, 0.000	1.637840671
Drug Related Deaths Mortality Rate by SIMD 2016 vingtile working age population using UK Drug Strategy definition (as applied by NRS/GROS) obtained in April 2018 from NRS.			

Table 2 indicates that based on working age population, the data calculated indicates that there were 102.66 deaths per 100,000 population. Using the same methodology, DRDs in the least deprived vingtile in 2017 were 1.64 per 100,000 population.

When calculating the DRD rate per 100,000 of working age population, there were 102.66 DRDs occurring every 100,000 population within vingtile 1, which is the most deprived area. This indicates that there were between 59 and 102 DRDs per 100,000 of working age population occurring in the most deprived areas, vingtiles 1-4. This is in stark contrast of between 1 and 7 deaths occurring in vingtiles 17 to 20, which represent the least deprived areas in Scotland. These figures illustrate the stark difference in mortality rate between the most and least deprived areas.

Table 3 DRDs in Scotland 2017 by SIMD vingtile total using a whole population approach

Table 3: Drug Related Deaths in Scotland 2017 by SIMD 2016 vingtile whole population					
SIMD 2016 Vingtile	Population	Indices		Confidence Intervals	Prevalence per 100,000
Vingtile 1	257742	173	0.000671214	0.0006, 0.0008	67.12138
Vingtile 2	259943	127	0.000488569	0.0004, 0.0006	48.85686
Vingtile 3	267615	74	0.000276517	0.0002, 0.0004	27.65166
Vingtile 4	264014	100	0.000378768	0.0003, 0.0005	37.87678
Vingtile 17	273600	12	0.000043860	0.0000, 0.0000	4.385965
Vingtile 18	272085	9	0.000033078	0.0000, 0.0000	3.30779
Vingtile 19	278159	13	0.000046736	0.0000, 0.0000	4.673586
Vingtile 20	281209	3	0.000010668	0.0000, 0.0000	1.066822
Data calculated using UK Drug Strategy definition (as applied by NRS/GROS) obtained in April 2018 from NRS.					

Table 3 provides data calculated using a whole population approach utilising WHO methods to obtain the burden of disease calculation. Using the WHO method, data in Table 3 indicates that there were 67.12 deaths per 100,000 population in the most deprived SIMD vingtile. Conversely in the least deprived SIMD vingtile there was 1 DRD per 100,000 using a whole population approach.

To put this data into a wider public health context, the WHO's Global Health Observatory Top Ten Causes of Death (2015) rank the leading causes of death per 100,000 population as ischemic heart disease (119 per 100,000 population), and second highest cause of death is stroke (85 per 100,000 population). When adopting the same 'whole population' methodology, DRDs in the 5% SIMD vingtile, accounts for 67.12 deaths per 100,000 population in 2017. This figure highlights the strong relationship between DRDs and deprivation. When examining the least deprived vingtile, DRDs account for 1.07 per 100,000 population in 2017.

Discussion

Our results indicate that a significant number of DRDs occur among individuals under the age of 35. Furthermore, a disproportionate number were in the most deprived SIMD vingtile, as opposed to every other SIMD vingtile. The findings relating to age challenge the assertion that age related health conditions are responsible for increased drug related deaths.

There is persuasive evidence that drug problems during the 1980s became increasingly associated with social disadvantage (Pearson 1987, Pearson & Gilman, 1994). Research to support this contention came from Glasgow (Haw, 1985; Shaw et al., 2007). In 2003-04, the rate for general/acute drug related hospital admissions were 15 per 100,000 population for the least deprived quintile, and 240 drug related hospital admissions per 100,000 for the most deprived quintile.

In 2015/16 the rate of general/acute drug related hospital admissions in the least deprived quintile had increased to 27 per 100, 000 population. During the same period, the number of general/acute drug related hospital admissions in the most deprived quintile had increased to 448.7 per 100,000 population (NRS, 2017). Dr Laurence Gruer (one of Scotland's leading authorities on drug injecting and HIV) and his colleagues noted that the relationship between deprivation and problematic drug use hospital related admission is far stronger than any other health related variable they studied (ACMD, 1998: 108). They also found a very strong correlation across postcode sectors between rates for drug related and alcohol related admissions (correlation coefficient 0.94 or $p<.001$).

Parkinson et al (2017) discuss DRDs between 1979 and 2013 and suggest that deprivation is significantly correlated to increased risk of DRD in the cohort involved in their study. They also suggest that the macroeconomic policies of the 1980s may be a factor on the number of DRDs. Although Scotland suffered as a result of the decline of heavy industry in the 1970s and 1980s due to the neo-liberal economic policies of various UK Governments, other areas within the United Kingdom were subjected to the same macroeconomic policies. These areas have also seen increases in DRDs, however they have not been at the significantly high levels recorded in Scotland. In 2012, Audit Scotland published the 'Health Inequalities in Scotland Report' (Auditor General for Scotland, 2012), which suggested that health inequalities have continued to increase since devolution, indicating that health inequalities are intractable and structural, and appear resistant to short term policy initiatives.

Warnings about the potential effects of deprivation on the health of people who use drugs have been documented (MacGregor & Thickett, 2011; ACMD, 1998; ACMD, 2016). The Scottish Government acknowledge that:

> *"There are strong and clear links between: poverty; deprivation; mental health and wellbeing; health inequalities; repeat offending; victimisation; and drug addiction. … Addressing wider inequalities such as housing, income, education and health can play an important role in reducing drug misuse. Tackling drug misuse effectively will, in itself, have a significant impact on inequalities in Scotland" (SPICE briefing paper, 2018).*

However, while acknowledging the structural factors that impact on the risk of PDU including poverty and deprivation, this statement suggests that tackling drug misuse will impact on inequality. The Scottish Government recognise that people with serious problems with drugs are often the most vulnerable and marginalised in society and experience stigma, discrimination and social isolation. While drug use among the general adult population and among the young is falling, the risk of DRD remains highest among individuals who reside in areas of multiple deprivation.

The drug policy context

In the early 2000's, with increasing DRDs linked to methadone, a focus on abstinent 'recovery' was considered the answer to address risk factors associated with problematic drug use (Ashton, 2008). In

addition, there was growing support for abstinent recovery within treatment services (Duke et al., 2013). In 2006, researchers claimed that under 10% of males and females were achieving abstinence after 33 months of treatment. The findings indicated that almost 6 in 10 wanted to be abstinent while fewer than one in ten achieved it (McKeganey et al., 2006).

The formation of Alcohol and Drug Partnerships in the mid-2000s introduced a range of statutory bodies to address problematic drug and alcohol use. This change of strategic focus was exemplified when the Scottish Government published, in May 2008, "The Road to Recovery". At its launch they defined recovery as:

> *'...a process through which an individual is enabled to move on from their problem drug use, towards a drug-free life as an active and contributing member of society…' (*The Scottish Government, 2008 chapter 3:81, page 23).

The Road to Recovery (The Scottish Government, 2008) set out a new drug treatment strategy for Scotland that emphasised a drug free lifestyle as its central tenet. Advocates of recovery adhered to a model that advanced abstinence-based treatments rather than conventional evidence-based harm reduction strategies such as methadone maintenance therapy (MMT) and other opioid replacement therapies (ORTs) (Ashton, 2008: Duke et al., 2013). William White, a prominent campaigner in the USA, promoted the idea that existing services were not equipped to enhance the collective condition of problem drug users and that new recovery groups, formed by and run by those who had lived experience of drug problems, should lead the way forward in drug treatment and recovery. He predicted a potential existential threat to professional treatment agencies when writing:

> *'Recovery as an organizing concept poses financial and ideological threats to existing social institutions and professional roles that have been granted cultural authority to manage AOD[3] problems' (White, 2007: 230).*

In Scotland, prominent politicians and some academics added their voices to the criticisms of MMT and other ORTs (Ashton, 2008, Duke et al., 2013). This legacy continues to influence drug treatment strategies in Scotland:

> *'In the last 20 years, the recovery movement in alcohol and other drugs has emerged as a major influence on alcohol and drug policy and practice in the UK, US and Australia' (Best et al. 2017: 1)*

This comment highlights the ideological shift from harm reduction toward abstinence-based recovery (McKeganey, 2011). The advocacy of a recovery model that opposes a professionalised treatment strategy and highly skilled workforce had the effect of paving the way for Government financial cuts to services.

Cuts to services in Scotland

Responsibility for treatment, support and other service provision is devolved to Scotland's 30 Alcohol and Drug Partnerships (ADPs), formerly Alcohol and Drug Action Teams, to commission treatment

[3] Alcohol and other drugs

services to address drug problems in their area (Audit Scotland, 2009; Davies, 2017). In 2016, the Scottish Government cut funding to local services by 22%, a reduction in funding that was maintained in 2017-18 (SPICE, 2018). The published figures for funding for NHS and Alcohol and Drug Partnerships (ADPs) in Scotland indicate a 20% cut from £69.2m in 2015-2106 to £53.8m in 2016-2017 (Davies, 2017:35). Indeed, these cuts are in direct contrast to the Scottish Government's own recommendations. In 2011, it published a review of future public service delivery, commonly known as The Christie Commission, with its Chair Dr Campbell Christie stating:

> *'We must prioritise expenditure on public services which prevent negative outcomes from arising' (Scottish Government, 2011: vi)*

It is clear that increased numbers of DRDs represent a negative outcome. However, the Christie Commission was short on specifics and mentioned the Scottish drug situation only fleetingly predicting that:

> *'The pressure on budgets is intense and public spending is not expected to return to 2010 levels in real terms for 16 years'* (The Scottish Government, 2011: viii)

Cuts to services that provide wide-ranging treatments and support to drug users in areas where drug problems are exacerbated by multiple deprivation and poverty, are exactly those areas where disproportionate numbers of problem drug users reside. In addition, cuts to services impact on what can be made available to problems drugs users. Tweed et al. (2018) note that:

> "Lack of funding was felt to create high thresholds for support that meant that services could only deal with individuals in crisis, rather than on a more proactive basis, and to favour services with lower paid and therefore less skilled or experienced staff" (Tweed et al., 2018:46).

In England, recent increases in deaths have been greatest among most deprived areas, which are also those which have had the greatest reductions in local authority funding and working-age adult welfare benefits. Local stakeholders for the Public Health England (PHE) report on drug-related deaths also highlighted delays or withdrawals in benefits, which not only have a direct impact on individual health and substance use but may be followed by lump sum repayments that exacerbate short-term risk (Public Health England, 2017). Universal credit, which is a reserved matter, will likely have a significant impact on rent arrears, court led repossession and landlord instigated evictions in Scotland.

Conclusion

To establish that a statistical association can legitimately be interpreted as indicative of underlying causes is always difficult. Within the traditions of epidemiology, it is accepted that the stronger the observed relationships and the more often the connection is observed in different circumstances and at different times, the greater is the likelihood of causation. We believe that these criteria are reasonably well met in relation to deprivation and drug related death.

The Road to Recovery (The Scottish Government, 2008) heralded a paradigm shift in how drug use would be addressed, with a clear emphasis on abstinent recovery. Although this new approach has

seen a shift in service provision, there is little emphasis placed on the impact of deprivation, which the SIMD data provides.

Although the suggestion that older drug users die as a result of prolonged problematic drug use (Parkinson et al, 2017; Scottish Drugs Forum 2017; The Scottish Government, 2018) is valid, we assert that other risk factors are significant. Parkinson et al (2017) suggests that neo-liberal economic policies, emerging in the UK during the 1980's, explains the significant rise in DRDs among the older cohort. However, as we have stated, our data indicates that a significant percentage of drug related deaths are currently under 35. These individuals only became of working age (16 and over) on, or after, the advent of Scottish devolution, when economic policy, and the new Scottish drug strategy, were under the auspices of the Scottish Parliament.

Our data indicates that problem drug users (PDUs) are overrepresented in areas of deprivation. This suggests that increased risk of poor health and vulnerability to wider economic trends and welfare reforms (such as universal credit, changes in disability living allowance, and its impact on rent arrears, landlord led evictions, and homelessness) have had, and will continue to have, a negative impact on the health of problem drug users and increased risk of drug related death.

When examining DRDs by working age population in the most deprived vingtile, this compares to the mortality rate for heart disease calculated using the WHO Burden of Disease methods (NRS, 2017; World Health Organisation, 2015). The disproportionate number of DRDs in the four most deprived vingtiles is clearly a public health emergency. We contend that this would be the case if the cause of death was not due to the use of illegal drugs among the poorest individuals in Scotland.

National policy makers, as well as local service delivery partners, must address this public health emergency before it becomes entrenched, intergenerational, and post-code specific. Service providers offer a range of services, however abstinent recovery, which underpins the Scottish Government drugs strategy, should no longer remain the main focus of service contact. The figure of 34% treatment episodes ending as an unplanned discharge' is concerning (Dickie et al, 2017). It is essential that if drug use is now under the realm of Public Health in Scotland, then relapse into illicit drug use is not considered as a failure, but a stage in a process of remaining healthy, and more importantly, alive.

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